8. Luciano

Program Name: Luciano.java **Test Input File: luciano.dat**

Luciano is learning sorts and has discovered different ones have different behaviors. He has a particular fascination with the **bubble** and **selection** sorts and wants to compare the two. Since final results are the same for both (the entire list in sorted order) and do not provide any obvious differentiation between the processes, he decides to stop each process about halfway through and study those results. Luciano chooses to sort the items in ascending alphabetical order, and only works with lowercase words.

For example, using a short list containing the words:

```
one two horse house habitat
```

the selection sort starts at the beginning, seeking the best word for the first place in the list (`habitat`), swapping it with the current first word in the list (`one`), and then for the second place (`horse`), swapping it with the current second word (`two`), and so on. After two iterations the order of the list is this, with the first two words in correct places:

habitat horse two house one

In the standard bubble sort, the word last in alpha order (`two`) is "bubbled" to the back in the first iteration, then the next to last in order (`one`), to the penultimate place, and so on, ending with this order after two iterations, the last two in correct places, and the remaining words in the same original relative order:

horse house habitat **one two**

When he realizes the bubble sort works from the end of the list, and the selection sort from the beginning, he decides to alter the bubble sort to work from the beginning to make it easier to study the difference in the behavior of the two sorts for the unprocessed portions of the list. This **reversed bubble sort** would "bubble" the first words in alpha order to the front of the list, resulting in the first two words in the correct place, showing this order after two iterations:

habitat horse one two house

Now he can see and study the slight difference in the unsorted portions of each list, satisfying his research goal.

Input: An integer N ($20 \leq N \leq 40$) stating the number of items in the dataset, followed by N words to be sorted, each of length 20 characters or less, all in lowercase.

Output: Two columns, the showing the selection sort order after **the first 10 items are sorted**, the second column the bubble sort order, also after **the first 10 items are sorted**. The columns will be separated by a colon (:). Each column will be 20 characters wide, left aligned, with a column header accordingly. See the output example for the exact format to follow.

See sample input and output for Luciano on next page.

Luciano (cont.)

Sample Input: **Sample Output:**

20	Selection Sort	:Bubble Sort
one	aaron	:aaron
two	bigilow	:bigilow
horse	blue	:blue
house	canary	:canary
habitat	canton	:canton
hunday	crown	:crown
gmc	detroit	:detroit
aaron	eightenn	:eightenn
uilproblems	eleven	:eleven
hairstudio	gmc	:gmc
eleven	uilproblems	:one
hairdo	hairdo	:two
canary	house	:horse
canton	habitat	:house
crown	hunday	:habitat
bigilow	two	:hunday
eightenn	one	:hairdo
blue	horse	:hairstudio
detroit	hairstudio	:uilproblems
hillary	hillary	:hillary